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(FILE 'HOME' ENTERED AT 12:40:23 ON 27 APR 2000)

FILE 'MEDLINE, BIOSIS, BIOTECHDS, SCISEARCH, CHEMLIST, CAPLUS' ENTERED AT
12:43:30 ON 27 APR 2000
L1 196 S DEAZA AND DEOXYGUANOSINE
L2 41 S L1 AND BASE AND (ANALOG OR ANALOGUE)
L3 33 DUP REM L2 (8 DUPLICATES REMOVED)

=> d ibib abs l3 1-33

L3 ANSWER 1 OF 33 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1999:808578 CAPLUS
DOCUMENT NUMBER: 132:31745
TITLE: Method for determining nucleotide identity through extension of immobilized primer
INVENTOR(S): Goelet, Philip; Knapp, Michael R.; Anderson, Stephen
PATENT ASSIGNEE(S): Molecular Tool, Inc., USA
SOURCE: U.S., 37 pp., Cont.-in-part of U.S. 5,888,819.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 8
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6004744	A	19991221	US 1991-775786	19911011
US 5888819	A	19990330	US 1991-664837	19910305
CA 2105060	AA	19920906	CA 1992-2105060	19920304
WO 9215712	A1	19920917	WO 1992-US1905	19920304
W: AU, CA, FI, JP, NO				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, MC, NL, SE				
AU 9215848	A1	19921006	AU 1992-15848	19920304
AU 660173	B2	19950615		
EP 576558	A1	19940105	EP 1992-908554	19920304
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, MC, NL, SE				
JP 06505394	T2	19940623	JP 1992-508312	19920304
NO 9303136	A	19930902	NO 1993-3136	19930902
US 5762876	A	19980609	US 1994-362266	19941222
PRIORITY APPLN. INFO.:			US 1991-664837	19910305
			US 1991-775786	19911011
			WO 1992-US1905	19920304
			US 1993-145145	19931103
			US 1993-155746	19931123
			US 1993-162397	19931206
			US 1993-173173	19931223

AB The invention concerns a reagent compn. that employs at least two different terminators of a nucleic acid template-dependent primer extension reaction to det. the identity of a nucleotide **base** at a specific position in a nucleic acid of interest. These primers are labeled with biotin and hybridization to streptavidin is detected. The primers are sepd. from nucleic acid of interest after the extension step by using denaturing conditions which comprise heat, alkali, formamide, urea, glyoxal, or enzymes or 0.2 N NaOH. The invention also concerns an immobilized method for detg. such identification. The invention may be

used to det. the presence or absence of a specific nucleotide sequence in a sample. Four terminators are labeled each with a different marker and may comprise a [redacted]leotide or nucleotide **analog** o[redacted] dideoxynucleotid[redacted]s or arabinoside triphosphates. [redacted]A non-natural nucleotide **analog** may comprise deoxyinosine or 7-**deaza**-2'-**deoxyguanosine**. It may also be employed in detn. of genotype and in the identification of different alleles. The organism may be a plant or microorganism or virus or bird or vertebrate or invertebrate or mammal or horse or dog or cow or pig or sheep.

L3 ANSWER 2 OF 33 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1999:89659 CAPLUS
DOCUMENT NUMBER: 130:223537
TITLE: 5-Aza-7-**deaza**-2'-**deoxyguanosine**. Oligonucleotide duplexes with novel **base** pairs, parallel chain orientation, and protonation sites in the core of a double helix
AUTHOR(S): Seela, Frank; Melenewski, Alexander
CORPORATE SOURCE: Lab. Organische Bioorganische Chemie, Inst. Chemie, Univ. Osnabrueck, Osnabrueck, D-49069, Germany
SOURCE: Eur. J. Org. Chem. (1999), (2), 485-496
CODEN: EJOCFK; ISSN: 1434-193X
PUBLISHER: Wiley-VCH Verlag GmbH
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 130:223537
AB Oligonucleotides contg. 5-aza-7-**deaza**-2'-**deoxyguanosine** (I) were prepd. by solid-phase synthesis. Hybridization studies of oligonucleotides contg. I resulted in new **base** pairs leading to duplexes with parallel (ps) or antiparallel (aps) chain orientation. Among those with parallel chains a stable purine-purine **base** pair was obsd. between 5-aza-7-deazaguanine and guanine or 7-deazaguanine.
Antiparallel stranded duplexes are formed when 5-aza-7-deazaguanine pairs with cytosine. This **base** pair has only two Hydrogen bonds under neutral conditions but is stabilized by a third one in acidic medium. A new **base** pair is also detected between the **base** of I and isoguanine (neutral medium).

L3 ANSWER 3 OF 33 MEDLINE
ACCESSION NUMBER: 1999388447 MEDLINE
DOCUMENT NUMBER: 99388447
TITLE: Achieving antisense inhibition by oligodeoxynucleotides containing N(7)-modified 2'-**deoxyguanosine** using tumor necrosis factor receptor type 1.
AUTHOR: Ojwang J O; Rando R F
CORPORATE SOURCE: ZymeTx, Inc., 800 Research Parkway, Suite 100, Oklahoma City, Oklahoma, 73104-3600, USA.. ojwang@zymetx.com
SOURCE: METHODS, (1999 Jul) 18 (3) 244-51.
Journal code: CPO. ISSN: 1046-2023.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199911
ENTRY WEEK: 19991104
AB Antisense oligodeoxynucleotides (ODNs) are being explored as therapeutic agents for the treatment of many disorders including viral infections, cancers, and inflammatory disorders. In addition, antisense technology can be of great benefit to those attempting to assign function to the multitude of new genes being uncovered in the genomics initiative. However, the demonstration that the gene-regulating effects produced by antisense-designed ODNs are attributable to an antisense mechanism of action requires carefully designed experimentation. Critical to the

assignment of an antisense mechanism of action is the availability of nuclease-stable ODNs, inside cells, that have a high binding affinity with the target mRNA and modulate gene functions in a sequence-dependent manner. To help us achieve a goal of sequence-specific antisense activity we designed antisense ODNs containing C(5)-propyne-modified 2'-deoxyuracil and N(7)-propyne-modified 7-**deaza**-2'-**deoxyguanosine** **bases** and partially modified (phosphorothioate) internucleoside linkages. These modified ODNs were found to have enhanced binding affinity to their target mRNA sequences as well as reduced sequence-independent side effects. We used these ODNs to specifically inhibit p55 tumor necrosis factor receptor type 1 expression and tumor necrosis factor alpha-mediated functions in culture assays. Copyright 1999 Academic Press.

L3 ANSWER 4 OF 33 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1999:617517 CAPLUS
TITLE: Synthesis and applications of 7-hydroxyalkyl-7-**deaza**-2'-**deoxyguanosines** and triphosphates.
AUTHOR(S): Kumar, Shiv; McDougall, Mark G.; Sun, Lei
CORPORATE SOURCE: Nucleic Acid Chemistry, Amersham Pharmacia Biotech, Cleveland, OH, 44128, USA
SOURCE: Book of Abstracts, 218th ACS National Meeting, New Orleans, Aug. 22-26 (1999), MEDI-145. American Chemical Society: Washington, D. C.
CODEN: 67ZJA5
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English
AB 2-Amino-5-substituted pyrrolo[2,3-d]pyrimidine nucleosides (7-substituted-7-deazaguanosines) are finding increasing applications as guanosine **analogs** in DNA sequencing, drug discovery and antisense research. When incorporated into oligonucleotides in place of 2'-**deoxyguanosine**, these **analogs** generally result in the stabilization of the resulting duplex. The synthesis of a series of 2-amino-5-hydroxyalkyl-7-(2'-deoxy-b-D-erythro-pentofuranosyl)-pyrrolo[2,3-d]pyrimidines and their corresponding triphosphates will be presented. The multistep synthesis starts with the construction of 7-deazapuine **base** from 6-amino-2,5 -disubstituted pyrimidine-4-one, followed by glycosylation and carbonyl insertion/Heck reaction.

L3 ANSWER 5 OF 33 SCISEARCH COPYRIGHT 2000 ISI (R)
ACCESSION NUMBER: 1999:110973 SCISEARCH
THE GENUINE ARTICLE: 160ZT
TITLE: The high-anti conformation of 7-halogenated 8-aza-7-**deaza**-2'-**deoxyguanosines**: A study of the influence of modified **bases** on the sugar structure of nucleosides
AUTHOR: Seela F (Reprint); Becher G; Rosemeyer H; Reuter H; Kastner G; Mikhailopulo I A
CORPORATE SOURCE: UNIV OSNABRUCK, INST CHEM, ORGAN & BIOORGAN CHEM LAB, BARBARASTR 7, D-49069 OSNABRUCK, GERMANY (Reprint); UNIV OSNABRUCK, INST CHEM, D-49069 OSNABRUCK, GERMANY; BYELARUSSIAN ACAD SCI, INST BIOORGAN CHEM, MINSK 220141, BYELARUS
COUNTRY OF AUTHOR: GERMANY; BYELARUS
SOURCE: HELVETICA CHIMICA ACTA, (JAN 1999) Vol. 82, No. 1, pp. 105-124.
Publisher: WILEY-V C H VERLAG GMBH, MUHLENSTRASSE 33-34, D-13187 BERLIN, GERMANY.
ISSN: 0018-019X.
DOCUMENT TYPE: General Review; Journal
FILE SEGMENT: PHYS; LIFE

LANGUAGE: English
REFERENCE COUNT: 115

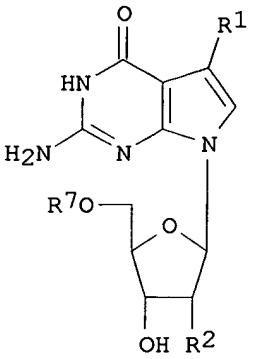
[redacted]STRACT IS AVAILABLE IN THE ALL[redacted]D IALL FORMATS*

AB The conforma[redacted]on of the 7-bromo- and 7-iodo-s[redacted]stituted 8-aza-7-deazapurine nucleosides 1 and 2 in the solid state and in aqueous solution was studied by single-crystal X-ray analyses and by H-1-NMR spectroscopy. In the solid state, both compounds display a high-anti conformation around the glycosylic bond, and their 2'-deoxy-beta-D-ribofuranose moieties adopt an N-type sugar puckering. The orientation of the exocyclic C(4')-C(5') bond was found to be crp in both cases. In D2O solution, both compounds display i) an 8-10% higher N-conformer population than 2'-**deoxyguanosine** and ii) a preference of the -sc conformation about the C(4')-C(5') bond. A comparative study on the influence of modified **bases** on the sugar structure of nucleosides is made.

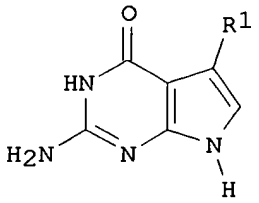
L3 ANSWER 6 OF 33 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1998:629981 CAPLUS
DOCUMENT NUMBER: 129:260742
TITLE: Preparation of 7-**deaza**-2'-**deoxyguanosine**-5'-triphosphate derivatives and their use in DNA sequencing
INVENTOR(S): Fuller, Carl; McDougall, Mark; Kumar, Shiv
PATENT ASSIGNEE(S): Amersham Pharmacia Biotech Inc, USA
SOURCE: Eur. Pat. Appl., 20 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 866070	A1	19980923	EP 1998-301727	19980309
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
GB 2323357	A1	19980923	GB 1998-5000	19980309
GB 2323357	B2	19990929		
JP 2000119296	A2	20000425	JP 1998-72317	19980320
PRIORITY APPLN. INFO.:			US 1997-PV41320	19970320

OTHER SOURCE(S): MARPAT 129:260742
GI



I



II

AB The title compds. (I; R1 = C1-10 alkyl optionally substituted with OH, amino, C1-4 alkoxy or halo; R2 = H, OH; R7 = H, mono-, di-, triphosphate or thiophosphate group; when R1 = Me then R7 .noteq. H), useful, e.g., in resoln. of compression artifacts in DNA sequencing, were prepd. A nucleotide sequence contg. I, a DNA acid sequence contg. a **base**

II (R1 = C1-10 alkyl, optionally substituted by OH, amino, C1-4 alkoxy or halo), a method for detg. the nucleoside **base** sequence of a DNA mol., a method for elongation of an oligonucleotide sequence, and 7-alkynyl **analogs** of I are also claimed. For example, esterification of 7-(prop-1-ynyl)-7-**deaza**-2'-**deoxyguanosine** and hydrogenation of the resulting 5'-triphosphate ester Et3N-salt with H in the presence of Pd/C gave I (R1 = Pr, R2 = H, R7 = triphosphate group), useful for the title purpose.

L3 ANSWER 7 OF 33 MEDLINE
ACCESSION NUMBER: 1999011428 MEDLINE
DOCUMENT NUMBER: 99011428
TITLE: Detection of telomerase activity in Chinese hamster V79 cells and its inhibition by 7-**deaza**-deoxy guanosine triphosphate and (TTAGGG)4 in vitro.
AUTHOR: Pandit B; Bhattacharyya N P
CORPORATE SOURCE: Crystallography and Molecular Biology Division, Saha Institute of Nuclear Physics, Calcutta-, 1/AF Bidhan Nagar, 700 064, India.
SOURCE: BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS, (1998 Oct 20) 251 (2) 620-4.
Journal code: 9Y8. ISSN: 0006-291X.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals; Cancer Journals
ENTRY MONTH: 199901
ENTRY WEEK: 19990104
AB To investigate the nature of telomerase activity and its inhibition in Chinese hamster V79 cells, we have detected telomerase activity in Chinese hamster cells using Telomeric Repeat Amplification Protocol (TRAP) assay. We have further studied inhibition characteristics of this enzyme in vitro by nucleotide **analogue** 7-**deaza**-2'-deoxy guanosine triphosphate (7-**deaza**-dGTP) and oligonucleotide (TTAGGG)4. Both the inhibitors inhibited the telomerase activity in a dose dependent manner. To attain 50% inhibition of the telomerase activity, we needed about 4.5 microM of 7-**deaza**-dGTP. Similarly, preincubation at 37 degreesC of the cell extract with 1.25 x 10(-3) microgram oligonucleotide (TTAGGG)4 showed 50% inhibition of the control value. Inhibition of telomerase activity by 7-**deaza**-dGTP could be due to the incorporation of the modified nucleotide in the telomeric repeat and thus altering the further binding/extension by the enzyme. (TTAGGG)4 could have possibly interacted with RNA component of telomerase and inhibited its activity. Copyright 1998 Academic Press.

L3 ANSWER 8 OF 33 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1998:42509 CAPLUS
DOCUMENT NUMBER: 128:111547
TITLE: Hybridization using probes that produce stable hybrids with stability substantially independent of **base** compositions
INVENTOR(S): Nguyen, Thuong; Asseline, Ulysse; Nguyen, H. K.; Durand, Maurice; Maurizot, Jean-claude; Dupret, Daniel; Bonfils, Edwige
PATENT ASSIGNEE(S): Appligene-Oncor S.A., Fr.; Nguyen, Thuong; Asseline, Ulysse; Nguyen, H. K.; Durand, Maurice; Maurizot, Jean-Claude; Dupret, Daniel; Bonfils, Edwige
SOURCE: PCT Int. Appl., 72 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent

LANGUAGE: French
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9749833	A1	19971231	WO 1997-FR1131	19970625
W: CA, JP, US				
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
FR 2750435	A1	19980102	FR 1996-8027	19960627
FR 2750435	B1	19980828		
CA 2258936	AA	19971231	CA 1997-2258936	19970625
EP 954610	A1	19991110	EP 1997-930584	19970625
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				

PRIORITY APPLN. INFO.: FR 1996-8027 19960627
WO 1997-FR1131 19970625
OTHER SOURCE(S): MARPAT 128:111547

AB Hybridization methods for producing a hybridization complex with its stability substantially independent of the **base** compn. of two hybridized nucleic acid mols. are described. The method is particularly intended for use in the sequencing of DNA by hybridization against large arrays of immobilized oligonucleotides. One of the methods of bringing about this stability is to use **base analogs** that do not adversely affect hybrid stability in the probe or the target sequence.

The synthesis of a no. of alkyl substituted **base analogs** and their incorporation into oligonucleotides using std. phosphoramidite chem. is described. Hybridization properties of these probes are also described.

L3 ANSWER 9 OF 33 SCISEARCH COPYRIGHT 2000 ISI (R)
ACCESSION NUMBER: 97:788543 SCISEARCH
THE GENUINE ARTICLE: YB903
TITLE: Regioselectivity of the Mannich reaction on pyrrolo[2,3-d]pyrimidine nucleosides related to 7-**deaza**-2'-deoxyadenosine or 7-**deaza**-2'-**deoxyguanosine**
AUTHOR: Seela F (Reprint); Chen Y M; Zulauf M
CORPORATE SOURCE: UNIV OSNABRUCK, INST CHEM, ORGAN & BIOORGAN CHEM LAB, BARBARASTR 7, D-49069 OSNABRUCK, GERMANY (Reprint)
COUNTRY OF AUTHOR: GERMANY
SOURCE: SYNTHESIS-STUTTGART, (SEP 1997) No. 9, pp. 1067-&. Publisher: GEORG THIEME VERLAG, P O BOX 30 11 20, D-70451 STUTTGART, GERMANY. ISSN: 0039-7881.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: PHYS; LIFE
LANGUAGE: English
REFERENCE COUNT: 31

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Mannich reactions were performed on 7-deazapurine 2'-deoxyribonucleosides and the regioselectivity was studied. 7-**Deaza**-2'-deoxyadenosine (2'-deoxytubercidin, 4a) furnished the 7-substituted Mannich **base** 5a. The side chain was introduced in the 8-position when 7-**deaza**-2 '-**deoxyguanosine** was used (Mannich **base** 7a). The regioselectivity changed back from position 8 to 7 when the reaction was performed on 4-methoxy-2-methylthio-7H-pyrrolo[2,3-d]pyrimidine 2'-deoxyribonucleoside (12). Thus a 7-substituted Mannich product of 7-**deaza**-2 '-**deoxyguanosine** could be obtained after demethylation and oxidation of the methylthio group followed by displacement of the oxidized 2-substituent with ammonia.

L3 ANSWER 10 OF 33 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1997:162565 CAPLUS

TITLE: Oligonucleotide **analog** arrays for enhanced hybridization.
AUTHOR(S): Fidanza, Jacqueline A.; McGall, Glenn H.
CORPORATE SOURCE: Affymetrix, Inc., Santa Clara, CA, 95051, USA
SOURCE: Book of Abstracts, 213th ACS National Meeting, San Francisco, April 13-17 (1997), ORGN-303. American Chemical Society: Washington, D. C.
CODEN: 64AOAA
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English
AB Nucleic acid **analogs** have been used extensively to modulate hybridization to target sequences. We are investigating the use of oligonucleotide **analog** probe arrays to enhance target hybridization while maintaining specificity. A:T and G:C rich probe arrays display different hybridization thermodn. under a given set of conditions. Our work has focused on incorporation of 2,6-diaminopurine to enhance the A:T **base** pairing and 7-**deaza**-2'-**deoxyguanosine** to disrupt 2.degree. structure assocd. with runs of G. The incorporation of 2'-O-methyl-ribonucleoside **analogs** within arrays is also under investigation. **Analog** arrays should improve binding to and therefore detection of both DNA and RNA targets.

L3 ANSWER 11 OF 33 BIOSIS COPYRIGHT 2000 BIOSIS
ACCESSION NUMBER: 1997:198131 BIOSIS
DOCUMENT NUMBER: PREV199799497334
TITLE: Oligonucleotide **analog** arrays for enhanced hybridization.
AUTHOR(S): Fidanza, Jacqueline A.; McGall, Glenn H.
CORPORATE SOURCE: Affymetrix Inc., 3380 Central Expressway, Santa Clara, CA 95051 USA
SOURCE: Abstracts of Papers American Chemical Society, (1997) Vol. 213, No. 1-3, pp. ORGN 303.
Meeting Info.: 213th National Meeting of the American Chemical Society San Francisco, California, USA April 13-17, 1997
ISSN: 0065-7727.
DOCUMENT TYPE: Conference; Abstract
LANGUAGE: English

L3 ANSWER 12 OF 33 BIOTECHDS COPYRIGHT 2000 DERWENT INFORMATION LTD
ACCESSION NUMBER: 1997-13046 BIOTECHDS
TITLE: Oligonucleotide **analog** arrays for enhanced hybridization;
DNA probe or RNA probe array (conference abstract)
AUTHOR: Fidanza J A; McGall G H
CORPORATE SOURCE: Affymetrix
LOCATION: Affymetrix, Inc., 3380 Central Expressway, Santa Clara, CA 95051, USA.
SOURCE: Abstr.Pap.Am.Chem.Soc.; (1997) 213 Meet., Pt.2, ORGN303
CODEN: ACSRAL
ISSN: 0065-7727
American Chemical Society, 213th ACS National Meeting, San Francisco, CA, 13-17 April, 1997.
DOCUMENT TYPE: Journal
LANGUAGE: English
AN 1997-13046 BIOTECHDS
AB Nucleic acid **analogs** have been used extensively to modulate hybridization to target sequences. The use of oligonucleotide **analog** DNA probe arrays to enhance target hybridization, while maintaining specificity, was investigated. A:T and G:C rich probe arrays displayed different hybridization thermodynamics under a given set of conditions. Experiments focused on incorporation of 2,6-diaminopurine to enhance the A:T **base** pairing and 7-**deaza**-2'-

deoxyguanosine to disrupt the secondary structure associated with runs of G. The incorporation of 2'-O-methylribonucleoside **analogs** within a[redacted]ys was also investigated. **Ana**[redacted] arrays should improve binding to and thus detection of both DNA and RNA targets. (0 ref)

L3 ANSWER 13 OF 33 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1996:440967 CAPLUS
DOCUMENT NUMBER: 125:78532
TITLE: Nucleic acid detection and identification using site-specific cleavage, especially for analysis of human disease-related mutant gene or microbial pathogen nucleic acid analysis
INVENTOR(S): Dahlberg, James E.; Lyamichev, Victor I.; Brow, Mary Ann D.; Oldenburg, Mary C.; Heisler, Laura M.; Fors, Lance; Olive, David Michael
PATENT ASSIGNEE(S): Third Wave Technologies, Inc., USA
SOURCE: PCT Int. Appl., 432 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 6
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9615267	A1	19960523	WO 1995-US14673	19951109
W: AU, CA, JP, US				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
US 5843654	A	19981201	US 1995-484956	19950607
AU 9642347	A1	19960606	AU 1996-42347	19951109
EP 788557	A1	19970813	EP 1995-940678	19951109
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
JP 10509322	T2	19980914	JP 1995-516227	19951109
PRIORITY APPLN. INFO.:			US 1994-337164	19941109
			US 1995-402601	19950309
			US 1995-484956	19950607
			US 1995-520946	19950830
			US 1992-986330	19921207
			US 1993-73384	19930604
			US 1994-254359	19940606
			WO 1995-US14673	19951109

AB The present invention relates to means for cleaving a nucleic acid in a site-specific manner. Enzymes, including 5' nucleases and 3' exonucleases, are used to screen for known and unknown mutations, including single **base** changes, in nucleic acids. Methods are provided which allow for the identification of genetic mutations in human gene sequences, including the human p53 gene, in a sample. Methods are provided which allow for the detection and identification of bacterial and viral pathogens and species in a sample.

L3 ANSWER 14 OF 33 SCISEARCH COPYRIGHT 2000 ISI (R)
ACCESSION NUMBER: 96:831598 SCISEARCH
THE GENUINE ARTICLE: VR419
TITLE: SPECIFIC RECOGNITION OF SUBSTRATE-**ANALOGS** BY THE DNA MISMATCH REPAIR ENZYME MUTY
AUTHOR: PORELLO S L; WILLIAMS S D; KUHN H; MICHAELS M L; DAVID S S
(Reprint)
CORPORATE SOURCE: UNIV UTAH, DEPT CHEM, SALT LAKE CITY, UT, 84112 (Reprint);
UNIV CALIF SANTA CRUZ, DEPT CHEM & BIOCHEM, SANTA CRUZ, CA, 95064; AMGEN INC, THOUSAND OAKS, CA, 91320
COUNTRY OF AUTHOR: USA

SOURCE: JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, (06 NOV 1996) Vol. 118, No. 44, pp. 10684-10692.
ISSN: 0002-7863.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: PHYS; LIFE
LANGUAGE: ENGLISH
REFERENCE COUNT: 60

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB The DNA repair enzyme MutY plays an important role in the prevention of DNA mutations caused by the oxidatively damaged lesion 7,8-dihydro-8-oxo-2'-**deoxyguanosine** (OG) by removal of misincorporated adenine residues in OG:A mismatched **base** pairs using N-glycosylase activity. MutY also has glycosylase activity toward adenine in the mismatched **base**-pairs G:A and C:A. We have investigated the interaction of MutY with DNA duplexes containing the 2'-deoxyadenosine (A) **analogs** 2'-deoxytubercidin (7-**deaza**-2'-deoxyadenosine, Z) and 2'-deoxyformycin A (F). Both F and Z should effectively mimic the recognition properties of A but be resistant to the glycosylase activity of MutY, owing to their structural properties. Thus, these derivatives will provide a method for forming a stable MutY-substrate **analog** complex amenable to structural and biochemical investigation. We find that oligonucleotide duplexes containing OG/G:F and ÓG/G:Z **base**-pairs are not substrates for MutY as expected. Using a gel retardation method to measure relevant K-d values, we determined that MutY has an increased association with duplexes containing OG/G:F and OG/G:Z **base**-pairs over their OG/G:C counterparts. Interestingly, MutY has a higher affinity for the F-containing duplexes than the Z counterparts. Additionally, MutY binds to the OG:F and G:F duplexes with a similar, albeit lower, affinity as the substrate OG:A and G:A duplexes. In footprinting experiments using methidiumpropyl-EDTA-Fe(II), a region of the duplex surrounding the OG:F **base**-pair is observed which is protected by MutY from hydroxyl radical cleavage. These results provide additional evidence for specific recognition of the OG:F **base**-pair within the DNA duplex. Furthermore, these results also illustrate the utility of OG:F duplexes for providing information regarding the MutY-mismatched DNA complex which could not be obtained with the normal OG:A substrate since a footprint on both strands of the duplex could only be observed with the OG:F-containing duplex. These substrate **analog** duplexes will provide avenues for structural analysis of the MutY-mismatched DNA complex and for investigating the properties of the unusual [4Fe-4S] center in MutY.

L3 ANSWER 15 OF 33 SCISEARCH COPYRIGHT 2000 ISI (R) DUPLICATE 1
ACCESSION NUMBER: 96:477744 SCISEARCH
THE GENUINE ARTICLE: UR839
TITLE: MECHANISM OF DEGRADATION OF PURINE NUCLEOSIDES BY FORMAMIDE - IMPLICATIONS FOR CHEMICAL DNA-SEQUENCING PROCEDURES
AUTHOR: SALADINO R (Reprint); MINCIONE E; CRESTINI C; NEGRI R; DIMAURO E; COSTANZO G
CORPORATE SOURCE: UNIV TUSCIA, DIPARTIMENTO AGROBIOL & AGROCHIM, I-01100 VITERBO, ITALY (Reprint); CNR, CTR STUDIO GLI ACIDI NUCL, ROME, ITALY; UNIV ROMA LA SAPIENZA, DIPARTIMENTO GENET & BIOL MOLEC, FDN IST PASTEUR, FDN CENCI BOLOGNETTI, ROME, ITALY
COUNTRY OF AUTHOR: ITALY
SOURCE: JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, (19 JUN 1996) Vol. 118, No. 24, pp. 5615-5619.
ISSN: 0002-7863.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: PHYS; LIFE
LANGUAGE: ENGLISH

REFERENCE COUNT: 31

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB We describe [redacted] reaction of formamide with 2'[redacted]oxyadenosine and 2'-**deoxyguanosine** [redacted] give imidazole ring opening by [redacted]cleophilic addition on the electrophilic C(8)-position of the purine ring. This information allows improvement of the one-lane chemical DNA sequencing procedure based on the **base**-selective reaction of formamide with DNA. The reactivity with formamide of several 7-deazapurine **analogues** (7-**deaza**-2'-deoxyinosine, 7-**deaza** -2'-**deoxyguanosine**, and 7-**deaza**-2'-deoxyadenosine) incorporated into polynucleotides is also described. The wide spectrum of different sensitivities to formamide displayed by these purine **analogues** provides the single-lane DNA chemical sequencing procedures with the possibility of wide-ranging signal intensity modulation and thus increased specificity.

L3 ANSWER 16 OF 33 MEDLINE

ACCESSION NUMBER: 96357131 MEDLINE

DOCUMENT NUMBER: 96357131

TITLE: Oligodeoxynucleotides containing C-7 propyne **analogs** of 7-**deaza**-2'-**deoxyguanosine** and 7-**deaza** -2'-deoxyadenosine.

AUTHOR: Buhr C A; Wagner R W; Grant D; Froehler B C

CORPORATE SOURCE: Gilead Sciences, Foster City, CA 94404, USA.

SOURCE: NUCLEIC ACIDS RESEARCH, (1996 Aug 1) 24 (15) 2974-80. Journal code: O8L. ISSN: 0305-1048.

PUB. COUNTRY: ENGLAND: United Kingdom

Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Cancer Journals; Priority Journals

ENTRY MONTH: 199612

AB The synthesis, hybridization properties and antisense activities of oligodeoxynucleotides (ODNs) containing 7-(1-propynyl)-7-**deaza** -2'-**deoxyguanosine** (pdG) and 7-(1-propynyl)-7-**deaza** -2'-deoxyadenosine (pdA) are described. The suitably protected nucleosides were synthesized and incorporated into ODNs. Thermal denaturation (Tm) of these ODNs hybridized to RNA demonstrates an increased stability relative to 7-unsubstituted deazapurine and unmodified ODN controls. Antisense inhibition by these ODNs was determined in a controlled microinjection assay and the results demonstrate that an ODN containing pdG is approximately 6 times more active than the unmodified ODN. 7-Propyne-7-**deaza**-2'-**deoxyguanosine** is a promising lead **analog** for the development of antisense ODNs with increased potency.

L3 ANSWER 17 OF 33 CAPLUS COPYRIGHT 2000 ACS

ACCESSION NUMBER: 1995:245471 CAPLUS

DOCUMENT NUMBER: 123:170044

TITLE: Synthesis of 2'-deoxy-.beta.-D-ribonucleosides and 2,3-dideoxy-.beta.-D-pentofuranosides on immobilized bacterial cells

AUTHOR(S): Votruba, Ivan; Holy, Antonin; Dvorakova, Hana; Gunter, Jaroslav; Hockova, Dana; Hrebabecky, Hubert; Cihlar, Tomas; Masojidkova, Milena

CORPORATE SOURCE: Institute Organic Chemistry Biochemistry, Academy Sciences Czech Republic, Prague, 166 10, Czech Rep.

SOURCE: Collect. Czech. Chem. Commun. (1994), 59(10), 2303-30 CODEN: CCCCAK; ISSN: 0010-0765

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Alginate gel-entrapped cells of auxotrophic thymine-dependent strain of E. coli catalyze the transfer of 2-deoxy-D-ribofuranosyl moiety of

2'-deoxyuridine to purine and pyrimidine **bases** as well as their aza and **deaza analogs**. All expts. invariably gave .beta.-anomers; in most cases, the reaction was stereospecific, affording N9-isomers in the purine and N1-isomers in the pyrimidine series. Also a 2,3-dideoxynucleoside can serve as donor of the glycosyl moiety. The acceptor activity of purine **bases** depends only little on substitution, the only condition being the presence of N7-nitrogen atom. On the other hand, in the pyrimidine series the activity is limited to only a narrow choice of mostly short 5-alkyl and 5-halo uracil derivs. Heterocyclic **bases** contg. amino groups are deaminated; this can be avoided by conversion of the **base** to the corresponding N-dimethylaminomethylene deriv. which is then ammonolyzed. The method was verified by isolation of 9-(2-deoxy-.beta.-D-ribofuranosyl) derivs. of adenine, guanine, 2-chloroadenine, 6-methylpurine, 8-azaadenine, 8-azaguanine, 1-deazaadenine, 3-deazaadenine, 1-(2-deoxy-.beta.-D-ribofuranosyl) derivs. of 5-ethyluracil, 5-fluorouracil, and 9-(2,3-dideoxy-.beta.-D-pentofuranosyl)hypoxanthine, 9-(2,3-dideoxy-.beta.-D-pentofuranosyl)-6-methylpurine, and other nucleosides.

L3 ANSWER 18 OF 33 MEDLINE DUPLICATE 2
ACCESSION NUMBER: 93378953 MEDLINE
DOCUMENT NUMBER: 93378953
TITLE: Footprinting titration studies on the binding of echinomycin to DNA incapable of forming Hoogsteen **base** pairs.
AUTHOR: Sayers E W; Waring M J
CORPORATE SOURCE: Department of Pharmacology, University of Cambridge, England..
SOURCE: BIOCHEMISTRY, (1993 Sep 7) 32 (35) 9094-107.
Journal code: A0G. ISSN: 0006-2960.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199312

AB In order to investigate the possible importance of Hoogsteen **base** pairing to the DNA-binding ability of echinomycin, quantitative DNase I footprinting has been performed. The substrate was the tyrT DNA restriction fragment, either "native" or substituted with one of the purine **analogs** 2'-deoxy-7-deazaadenosine and 2'-deoxy-7-deazaguanosine in both strands. The modified DNA species were prepared by PCR and selectively labeled at the 5' terminus of one strand (usually the upper "Watson" strand) with [32P]ATP and polynucleotide kinase. Proper incorporation of the **analog** nucleotides was verified by Maxam-Gilbert G- and C-sequencing reactions as well as exposure to osmium tetroxide and diethyl pyrocarbonate. OsO4 was found to react strongly with the 7-**deaza** nucleotides, providing a good check of faithful incorporation. The previously observed echinomycin-induced hyperreactivity of purines toward diethyl pyrocarbonate was eliminated by incorporating the appropriate 7-deazapurine. The DNase I footprinting titration studies greatly refined the existing knowledge of the DNA-binding characteristics of echinomycin, as they revealed five general types of concentration-dependent behavior at single-bond resolution. Estimates of microscopic binding constants at individual DNA binding sites were obtained by measuring the antibiotic concentration which produced a half-maximal effect on the concentration of a given DNase I cleavage product. All binding sites contained one or more CpG steps, and all CpG steps analyzed formed part of a binding site for echinomycin. No consistent differences in the estimated binding constants for these sites were observed by comparing normal and modified DNAs, indicating that the abolition of formal Hoogsteen pairs did not significantly alter the thermodynamics of echinomycin-DNA interaction. The

lack of any detectable decrease in binding constants for critical sites in the 7-deazapuri[redacted]-substituted DNAs argues agains[redacted]ny anti-syn conformational transition of purine nucleosides occurring in association with the bis-intercalative complex formation.

L3 ANSWER 19 OF 33 MEDLINE DUPLICATE 3
ACCESSION NUMBER: 93181209 MEDLINE
DOCUMENT NUMBER: 93181209
TITLE: An anti-parallel triple helix motif with oligodeoxynucleotides containing 2'-**deoxyguanosine** and 7-**deaza**-2'-deoxyxanthosine.
AUTHOR: Milligan J F; Krawczyk S H; Wadwani S; Matteucci M D
CORPORATE SOURCE: Gilead Sciences, Foster City, CA 94404.
SOURCE: NUCLEIC ACIDS RESEARCH, (1993 Jan 25) 21 (2) 327-33.
Journal code: O8L. ISSN: 0305-1048.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals; Cancer Journals
ENTRY MONTH: 199306
AB Triple helix formation of oligodeoxynucleotides (ODNs) with a 15 **base** pair poly-purine DNA target in the HER2 promoter was examined by footprinting analysis. 7-**deaza**-2'-deoxyxanthosine (dzaX) was identified as a purine **analogue** of thymidine (T) which forms dzaX:A-T triplets. ODNs containing 2'-**deoxyguanosine** (G) and dzaX were found to form triple helices in an anti-parallel orientation, with respect to the poly-purine strand of the target DNA. In comparative studies under physiological K+ and Mg++ concentrations and at pH 7.2, the ODNs containing G and dzaX showed high affinity to the target sequence while the ODNs containing G and T were not able to bind. In the absence of added monovalent salts both ODNs showed high affinity to the target sequence. The substitution of 7-**deaza**-2'-**deoxyguanosine** for G substantially decreased the capacity of the ODNs to form triple helices under physiological conditions, indicating that dzaX may be unique in its ability to enhance triple helix formation in the anti-parallel motif.

L3 ANSWER 20 OF 33 MEDLINE
ACCESSION NUMBER: 92150159 MEDLINE
DOCUMENT NUMBER: 92150159
TITLE: 7-Deazapurine containing DNA: efficiency of c7GdTP, c7AdTP and c7IdTP incorporation during PCR-amplification and protection from endodeoxyribonuclease hydrolysis.
AUTHOR: Seela F; Roling A
CORPORATE SOURCE: Laboratorium fur Organische und Bioorganische Chemie, Universitat Osnabruck, FRG..
SOURCE: NUCLEIC ACIDS RESEARCH, (1992 Jan 11) 20 (1) 55-61.
Journal code: O8L. ISSN: 0305-1048.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals; Cancer Journals
ENTRY MONTH: 199205
AB The enzymatic synthesis of 7-deazapurine nucleoside containing DNA (501 bp) is performed by PCR-amplification (Taq polymerase) using a pUC18 plasmid DNA as template and the triphosphates of 7-**deaza**-2'-**deoxyguanosine** (c7Gd), -adenosine (c7Ad) and -inosine (c7Id). c7GdTP can fully replace dGTP resulting in a completely modified DNA-fragment of defined size and sequence. The other two 7-deazapurine triphosphates (c7AdTP) and (c7IdTP) require the presence of the parent purine 2'-deoxyribonucleotides. In purine/7-deazapurine nucleotide mixtures Taq polymerase prefers purine over 7-deazapurine nucleotides but accepts c7GdTP much better than c7AdTP or c7IdTP. As incorporation of

7-deazapurine nucleotides represents a modification of the major groove of DNA it can be used to probe DNA/protein interactions. Regioselective phosphodiester hydrolysis of the modified DNA-fragments was studied with 28 endodeoxyribonucleases. c7Gd is able to protect the DNA from the phosphodiester hydrolysis in more than 20 cases, only a few enzymes (Mae III, Rsa I, Hind III, Pvu II or Taq I) do still hydrolyze the modified DNA. c7Ad protects DNA less efficiently, as this DNA could only be modified in part. The absence of N-7 as potential binding position or a geometric distortion of the recognition duplex caused by the 7-deazapurine **base** can account for protection of hydrolysis.

L3 ANSWER 21 OF 33 MEDLINE
ACCESSION NUMBER: 92216125 MEDLINE
DOCUMENT NUMBER: 92216125
TITLE: Improvements in the chain-termination method of DNA sequencing through the use of 7-**deaza**-2'-deoxyadenosine.
AUTHOR: Jensen M A; Zagursky R J; Trainor G L; Cocuzza A J; Lee A; Chen E Y
CORPORATE SOURCE: Central Research and Development Department, E.I. du Pont de Nemours & Company (Inc.), Wilmington, DE 19898..
SOURCE: DNA SEQUENCE, (1991) 1 (4) 233-9.
Journal code: A9H. ISSN: 1042-5179.
PUB. COUNTRY: Switzerland
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199207
AB Significant improvements in the quality of DNA sequencing data have been shown when deoxyadenosine triphosphate (dATP) is replaced by 7-**deaza**-2'-deoxyadenosine triphosphate (c7dATP). The use of c7dATP in conjunction with 7-**deaza**-2'-**deoxyguanosine** triphosphate (c7dGTP) further decreases anomalies in electrophoretic mobility which are caused by compressions involving G and/or A residues. This effect is observed for both isotope-based and fluorescence-based sequencing approaches. Replacing dATP with c7dATP also results in a higher degree of uniformity in the frequency of chain termination reactions, when such terminations involve the incorporation of fluorescence-labeled dideoxynucleotides by T7 polymerase. These improvements in the gel-resolution and distribution of chain-terminated DNA products result in higher accuracy in both manual and automated **base** assignment.

L3 ANSWER 22 OF 33 MEDLINE
ACCESSION NUMBER: 93027441 MEDLINE
DOCUMENT NUMBER: 93027441
TITLE: Solid-phase synthesis of oligo(2'-deoxyxylonucleotides) and PCR amplification of **base**-modified DNA fragments.
AUTHOR: Seela F; Rosemeyer H; Krecmerova M; Roling A
CORPORATE SOURCE: Laboratorium fur Organische und Bioorganische Chemie, Fachbereich Biologie/Chemie, Universitat Osnabruck, FRG.
SOURCE: NUCLEIC ACIDS SYMPOSIUM SERIES, (1991) (24) 87-90.
Journal code: O8N. ISSN: 0261-3166.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199301
AB 1-(2'-Deoxy-beta-D-threo-pentofuranosyl)thymine (xTd) and -adenine (xAd) were converted into their appropriately protected 3'-phosphonates 1a, 2a as well as their 2-cyanoethyl phosphoramidites 1b, 2b. These compounds

were used for solid-phase syntheses of the oligo(2'-deoxy-beta-D-xylonucleotides) 5-8. Structural properties and behavior against nucleases
is described. Apart from oligo(2'-deoxyxylonucleotides) the PCR-amplification of a pUC18 DNA fragment with Taq polymerase was studied in the presence of the 7-deazapurine derivatives of dGTP, dATP, and dITP. The incorporation efficiency of the modified compounds was compared with those of the parent nucleotides. 7-**Deaza**-2'-**deoxyguanosine** protected the DNA-fragment from hydrolysis by the restriction endodeoxyribonuclease Eco RI, Pst I, Bam HI, and Sma I if the nucleoside was located within the recognition site.

L3 ANSWER 23 OF 33 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1990:193185 CAPLUS
DOCUMENT NUMBER: 112:193185
TITLE: Sequencing with Taq DNA polymerase
AUTHOR(S): Brow, Mary Ann D.
CORPORATE SOURCE: McArdle Lab. Cancer Res., Univ. Wisconsin, Madison, WI, 53706, USA
SOURCE: PCR Protoc.: Guide Methods Appl. (1990), 189-96. Editor(s): Innis, Michael A. Academic: San Diego, Calif.
CODEN: 56TMAY
DOCUMENT TYPE: Conference
LANGUAGE: English
AB Taq DNA polymerase has proven to be highly advantageous for the dideoxynucleotide chain-termination method of DNA sequencing of both conventional and single-stranded PCR templates. The basic sequencing protocol described here involves (1) annealing an oligonucleotide primer to a single-stranded template; (2) labeling the primer in a short, low-temp. polymn. reaction in the presence of .alpha.-labeled dNTP and 3 unlabeled dNTPs, all at low concn.; and (3) extending the labeled primer in 4 sep. **base**-specific, high-temp. reactions, each in the presence of higher concns. of all dNTPs and 1 chain-terminating ddNTP. If
5'-end-labeled primers are used, step (2) is eliminated. The helix-destabilizing **base analog** 7-**deaza**-2'-**deoxyguanosine**-5'-triphosphate (c7dGTP) can be incorporated to prevent gel compressions. The products of these reactions are then sepd. by high-resoln. polyacrylamide-urea gel electrophoresis and visualized by autoradiog. or by nonisotopic detection methods.

L3 ANSWER 24 OF 33 MEDLINE
ACCESSION NUMBER: 92190541 MEDLINE
DOCUMENT NUMBER: 92190541
TITLE: Incorporation of 7-**deaza** dGTP during the amplification step in the polymerase chain reaction procedure improves subsequent DNA sequencing [published erratum appears in DNA Seq 1991;1(6):427].
AUTHOR: Fernandez-Rachubinski F; Eng B; Murray W W; Blajchman M A; Rachubinski R A
CORPORATE SOURCE: Department of Pathology, McMaster University, Hamilton, Ontario, Canada..
SOURCE: DNA SEQUENCE, (1990) 1 (2) 137-40.
Journal code: A9H. ISSN: 1042-5179.
PUB. COUNTRY: Switzerland
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199206
AB An improved method for sequencing human genomic DNA amplified by the polymerase chain reaction (PCR) procedure is described. The portion of the
genome investigated is the 383 nucleotide-long exon 2 of the human antithrombin III gene. Incorporation of the **analogue** of dGTP, 7-**deaza**-2'-**deoxyguanosine**-5'-triphosphate, during the

amplification of exon 2 by PCR allowed for the elimination of recurrent artifacts obtained during sequencing of the amplified DNA by the dideoxyribonucl[redacted]ide chain termination method.

L3 ANSWER 25 OF 33 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1990:211973 CAPLUS
DOCUMENT NUMBER: 112:211973
TITLE: PCR with 7-**deaza**-2'-**deoxyguanosine** triphosphate
AUTHOR(S): Innis, Michael A.
CORPORATE SOURCE: Cetus Corp., Emeryville, CA, 94608, USA
SOURCE: PCR Protoc.: Guide Methods Appl. (1990), 54-9. Editor(s): Innis, Michael A. Academic: San Diego, Calif.
CODEN: 56TMAY
DOCUMENT TYPE: Conference
LANGUAGE: English
AB A likely cause for the difficulties in amplifying certain sequences by polymerase chain reaction (PCR) is the presence of secondary structures in single-strand copies of the target DNA segment, which hinder annealing and/or extension of the primers. Th use of 7-**deaza**-2'-**deoxyguanosine** (c7dGTP) in PCR incorporates this structure-destabilizing **base analog** into the amplified DNA. Taq DNA polymerase incorporates c7dGTP with kinetics similar to those of dGTP incorporation. Because the N-7 position of the guanine ring is replaced with a methine moiety, 7-deazaguanine precludes Hoogsteen bond formation (stacking) without affecting Watson-Crick **base** pairing. The use of c7dGTP in PCR can significantly increase the specificity of the reaction with nucleic acid templates that contain stable secondary structures and/or have compressed regions. Furthermore, incorporation of c7dGTP does not affect the fidelity of PCR, and the 7-**deaza**-PCR product can be subcloned readily into Escherichia coli and/or sequences. A protocol for use of c7dGTP in the polymerase chain reaction is presented.

L3 ANSWER 26 OF 33 MEDLINE
ACCESSION NUMBER: 89160288 MEDLINE
DOCUMENT NUMBER: 89160288
TITLE: Alternating d(G-C)3 and d(C-G)3 hexanucleotides containing 7-**deaza**-2'-**deoxyguanosine** or 8-aza-7-**deaza**-2'-**deoxyguanosine** in place of dG.
AUTHOR: Seela F; Driller H
CORPORATE SOURCE: Laboratorium fur Organische and Bioorganische Chemie, Universitat Osnabruck, FRG.
SOURCE: NUCLEIC ACIDS RESEARCH, (1989 Feb 11) 17 (3) 901-10. Journal code: O8L. ISSN: 0305-1048.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals; Cancer Journals
ENTRY MONTH: 198906
AB The synthesis of alternating hexamers (8-13) derived from d(C-G)3 or d(G-C)3 but containing c7z8Gd (2) or c7Gd (3) instead of dG is described employing phosphoramidite-chemistry. Apart from the isobutyryl group the dimethylaminomethylene residue was used for the nucleobase-protection of 3. The methyl- and the cyanoethyl-phosphoramidites of 3 (5a-c) were synthesized. They were employed together with those of c7G or c7z8Gd in automated oligonucleotide synthesis. Tm-values as well as thermodynamic data of the oligomers 9, 10, 12, and 13 indicated that duplexes were destabilized if c7Gd replaced dG, whereas c7z8Gd stabilized the duplex structure. In contrast to d(C-G)3 which underwent salt-dependent B-Z transition, CD-spectra of oligomers containing c7Gd or c7z8Gd in place of dG showed retained B-conformation.

L3 ANSWER 27 OF 33 MEDLINE DUPLICATE 4
ACCESSION NUMBER: [redacted]71713 MEDLINE
DOCUMENT NUMBER: [redacted]71713
TITLE: DNA sequencing with Thermus aquaticus DNA polymerase and direct sequencing of polymerase chain reaction-amplified DNA.
AUTHOR: Innis M A; Myambo K B; Gelfand D H; Brow M A
CORPORATE SOURCE: Department of Microbial Genetics, Cetus Corporation, Emeryville, CA 94608.
SOURCE: PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, (1988 Dec) 85 (24) 9436-40. Journal code: PV3. ISSN: 0027-8424.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals; Cancer Journals
ENTRY MONTH: 198903
AB The highly thermostable DNA polymerase from Thermus aquaticus (Taq) is ideal for both manual and automated DNA sequencing because it is fast, highly processive, has little or no 3'-exonuclease activity, and is active over a broad range of temperatures. Sequencing protocols are presented that produce readable extension products greater than 1000 **bases** having uniform band intensities. A combination of high reaction temperatures and the **base analog** 7-**deaza**-2'-**deoxyguanosine** was used to sequence through G + C-rich DNA and to resolve gel compressions. We modified the polymerase chain reaction (PCR) conditions for direct DNA sequencing of asymmetric PCR products without intermediate purification by using Taq DNA polymerase. The coupling of template preparation by asymmetric PCR and direct sequencing should facilitate automation for large-scale sequencing projects.

L3 ANSWER 28 OF 33 BIOTECHDS COPYRIGHT 2000 DERWENT INFORMATION LTD
ACCESSION NUMBER: 1989-03099 BIOTECHDS
TITLE: DNA sequencing with Thermus aquaticus DNA-polymerase and direct sequencing of polymerase chain reaction-amplified DNA;
DNA amplification
AUTHOR: Innis M A; Myambo K B; Gelfand D H; Brow M A D
CORPORATE SOURCE: Cetus
LOCATION: Department of Microbial Genetics, Cetus Corporation, 1400 Fifty-Third Street, Emeryville, CA 94608, USA.
SOURCE: Proc.Natl.Acad.Sci.U.S.A.; (1988) 85, 24, 2436-40
CODEN: PNASA6
DOCUMENT TYPE: Journal
LANGUAGE: English
AN 1989-03099 BIOTECHDS
AB The highly thermostable DNA-polymerase (EC-2.7.7.7) from Thermus aquaticus (Taq) is suitable for manual and automated DNA sequencing because it is rapid, has little or no 3'-exonuclease activity, and is active over a broad temp. range. DNA sequencing protocols were developed to produce readable extension products of over 1000 **bases**, having uniform band intensities. A combination of high reaction temp. and the **base analog** 7-**deaza**-2'-**deoxyguanosine** was used to sequence G+C-rich DNA and to resolve gel compressions. The enzyme worked equally well with either 5'-labeled primers or by incorporation of label in a 2-step reaction protocol. Both approaches generated sequencing ladders free of background bands which were uniform and readable over long distances. The polymerase chain reaction conditions were modified for direct DNA sequencing of asymmetric polymerase chain reaction products without intermediate purification by using Taq DNA-polymerase. The coupling of template preparation by

asymmetric polymerase chain reaction and direct sequencing should facilitate automation for large-scale DNA sequencing projects. (19 ref)

L3 ANSWER 29 OF 33 MEDLINE
ACCESSION NUMBER: 86176731 MEDLINE
DOCUMENT NUMBER: 86176731
TITLE: Palindromic oligonucleotides containing 7-**deaza**-2'-**deoxyguanosine**: solid-phase synthesis of d[(p)GG*AATTCC] octamers and recognition by the endodeoxyribonuclease EcoRI.
AUTHOR: Seela F; Driller H
SOURCE: NUCLEIC ACIDS RESEARCH, (1986 Mar 11) 14 (5) 2319-32. Journal code: O8L. ISSN: 0305-1048.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals; Cancer Journals
ENTRY MONTH: 198607
AB Octadeoxynucleotides with the sequence d[(p)GG*AATTCC] have been prepared by solid-phase synthesis employing regular and **base**-modified phosphoramidites. These oligomers which contain an isosterically altered recognition sequence of the endodeoxyribonuclease Eco RI form duplexes under appropriate salt conditions. Since G* can represent 7-**deaza**-2'-**deoxyguanosine** the oligomers were used as probes to study their cleavage by the endodeoxyribonuclease Eco RI. The enzymatic hydrolysis of the modified octamer was strongly decreased compared to the regular DNA-fragment. This shows that guanine N-7 located at the cleavage site is important for the recognition process by the enzyme. The residual enzymatic activity is discussed on the basis of reduced specificity towards the recognition fragment. The fact that this cleavage occurs already under regular conditions indicates that the process described here
bases on an intrinsic property of the oligomer and is different from the star activity.

L3 ANSWER 30 OF 33 MEDLINE
ACCESSION NUMBER: 86148474 MEDLINE
DOCUMENT NUMBER: 86148474
TITLE: Improvement of the dideoxy chain termination method of DNA sequencing by use of deoxy-7-deazaguanosine triphosphate in place of dGTP.
AUTHOR: Mizusawa S; Nishimura S; Seela F
SOURCE: NUCLEIC ACIDS RESEARCH, (1986 Feb 11) 14 (3) 1319-24. Journal code: O8L. ISSN: 0305-1048.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals; Cancer Journals
OTHER SOURCE: GENBANK-X03522
ENTRY MONTH: 198606
AB The dideoxy chain termination method using deoxy-7-deazaguanosine triphosphate (dc7GTP) in place of dGTP was found to be very useful. Sequencing of a part of the human N-myc gene having 85% GC content is impossible by the original method using dGTP, because of compression of bands. However, the nucleotide sequence of this part was unambiguously determined by analysis of both strands by the modified method. Use of dc7GTP is concluded to improve the dideoxy chain termination method for DNA sequencing.

L3 ANSWER 31 OF 33 BIOSIS COPYRIGHT 2000 BIOSIS DUPLICATE 5
ACCESSION NUMBER: 1987:455 BIOSIS
DOCUMENT NUMBER: BA83:455
TITLE: 7 **DEAZA**-2'-**DEOXYGUANOSINE**-5'-TRIPHOSPHATE ENHANCED RESOLUTION IN M-13 DIDEOXY SEQUENCING.

AUTHOR(S): BARR P J; THAYER R M; LAYBOURN P; NAJARIAN R C; SEELA F; TOLAN D R
CORPORATE SOURCE: [redacted]IRON RES. LAB., CHIRON CORP., 4[redacted] HORTON ST., [redacted]ERYVILLE, CALIF. 94608.
SOURCE: BIOTECHNIQUES, (1986) 4 (5), 428-432.
CODEN: BTNQDO. ISSN: 0736-6205.
FILE SEGMENT: BA; OLD
LANGUAGE: English

AB Substitution of dGTP with its isosteric **analog** 7-**deaza** -2'-**deoxyguanosine**-5'-triphosphate (c7dGTP) allows increased resolution during the M13 dideoxy sequencing of particularly G-C rich regions of DNA. We compared c7dGTP with dGTP and 2'-deoxyinosine-5'-triphosphate (dITP), the dGTP **analog** most frequently used for destabilization of secondary structure during gel electrophoresis. Results of this comparison showed that c7dGTP and also allowed for increased legibility over longer regions of sequence than with dITP. We ascribe these improved features to an inability of c7dG to form higher secondary structures in the polymeric configuration, together with a higher stability of c7dG:dC **base** pairs over those of dI:dC.

L3 ANSWER 32 OF 33 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1986:553490 CAPLUS
DOCUMENT NUMBER: 105:153490
TITLE: New components for improved solid-phase synthesis of **base**- and backbone-modified oligodeoxyribonucleotides
AUTHOR(S): Uznanski, Bogdan; Koziolkiewicz, Maria; Stec, Wojciech J.; Zon, Gerald; Shinozuka, Kazuo; Marzili, Luigi G.
CORPORATE SOURCE: Cent. Mol. Macromol. Stud., Polish Acad. Sci., Lodz, 90-362, Pol.
SOURCE: Chem. Scr. (1986), 26(1), 221-4
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AB The manual simultaneous synthesis of 2-8 oligonucleosides using phosphoramidite reagents and controlled pore glass support was achieved in a simple and efficient manner using handled interconnected reaction vessels (columns) having porous Teflon filters to allow for syringe- and vacuum-assisted intake and removal of solns., resp., from the multicolumn. The method is exemplified by the synthesis of the title compds. that included 7-**deaza**-2'-**deoxyguanosine** and 5-fluoro-2'-deoxyuridine residues, as well as P-chiral Et phosphotriester linkages, all as **analog** of three self-complementary d(GGAATTCC), which serve as pseudo substrates for the restriction enzyme Eco RI endonuclease.

L3 ANSWER 33 OF 33 MEDLINE
ACCESSION NUMBER: 85215522 MEDLINE
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TITLE: Solid-phase synthesis of the self-complementary hexamer d(c7GpCpc7GpCpc7GpC) via the O-3'-phosphoramidite of 7-**deaza**-2'-**deoxyguanosine**.
AUTHOR: Seela F; Driller H
SOURCE: NUCLEIC ACIDS RESEARCH, (1985 Feb 11) 13 (3) 911-26.
Journal code: O8L. ISSN: 0305-1048.
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AB The synthesis of the O-3'-phosphoramidite of a suitably protected 7-

deaza-2'-**deoxyguanosine** (c7G) which is an isostere of 2'-**deoxyguanosine** is described. The phosphoramidite of the modified nucleoside was used in the synthesis of the self-complementary hexamer d(c7GpCpc7GpCpc7GpC) on functionalized silica gel in a mini-reactor. As expected from the parent hexamer d(GpCpGpCpGpC) the isosteric d(c7GpCpc7GpCpc7GpC) exhibits a rigid secondary structure (22% hypochromicity at 280 nm) and forms a duplex in 1 M aqueous sodium chloride solution. Due to the altered pi-electron system of the pyrrolo[2,3-d]pyrimidine nucleobase, which affects **base** stacking and hydrogen bonding, the Tm of the modified duplex is decreased by 10 degrees C compared to that of the parent purine hexamer. Moreover, it is expected that the incorporation of c7G influences the pitch of the helix.